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varies directly with the temperature, a change of one degree in the latter producing a change of  $0^{\circ}.018$  in the former. Besides, the setting increased systematically about  $0^{\circ}.010$  a month.

6. The reading of the *nadir-point* varies  $\begin{Bmatrix} \text{inversely} \\ \text{directly} \end{Bmatrix}$  as the temperature for circle  $\begin{Bmatrix} \text{east} \\ \text{west} \end{Bmatrix}$ , a temperature change of one degree producing a change of  $0''.15$  in the reading of the nadir-point.

7. The *flexure* is quite constant, its mean value being  $\pm 0''.16 \pm 0''.026$ .

8. Cold and moist weather causes a separation of the piers; dry and hot weather, the reverse.

ARMIN O. LEUSCHNER.

LICK OBSERVATORY, March, 1890.

#### THE BOYDEN PREMIUM.

Mr. U. A. BOYDEN, of Boston, has deposited with the Franklin Institute of Philadelphia the sum of \$1000, which will be awarded as a prize "to any resident of North America who shall determine by experiment whether all rays of light, and other physical rays, are or are not transmitted with the same velocity." The competition is to close on January 1, 1891. Particulars may be found in the advertising pages of the *Journal of the Franklin Institute*.

#### COMPARISON OF THE SENSITIVENESS OF THE EYE AND OF THE PHOTOGRAPHIC PLATE.

[By A. C. RANYARD, F. R. A. S.]

"Sensitive as are the salts of silver in the dry-plates at present in use, they do not correspond in sensitiveness with the living matter of the retina, on which images of comparatively faint objects are continually being impressed and obliterated. When we look at a faint object, and the pupil is fully expanded, the eye may be compared to a camera with a focal length of about four times its aperture. With such a camera it would be useless to attempt to photograph objects illuminated by candle-light in a fraction of a second. Yet the eye will perceive a succession of such faintly illuminated objects in a small fraction of a second, as any one may satisfy himself by watching any quickly-moving objects illuminated by the light of a candle, or even by a much fainter light."—From *Knowledge*, June 2, 1890 (page 157).

#### CORRIGENDA.

Vol. II, page 99, lines 20–22: The order of the numbers *should be* 194, 248, 175, 143 *instead of* 143, 248, 194, 175. A. O. L.